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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/993,204	11/19/2001	John Pope	1529	8079
28005	7590	10/17/2006	EXAMINER PATHAK, SUDHANSHU C	
SPRINT 6391 SPRINT PARKWAY KSOPHT0101-Z2100 OVERLAND PARK, KS 66251-2100			ART UNIT 2611	PAPER NUMBER

DATE MAILED: 10/17/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/993,204

Applicant(s)

POPE, JOHN

Examiner

Sudhanshu C. Pathak

Art Unit

2611

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on April 18th, 2006.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1, 5, 6, 9, 13, 14, 16 and 18 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 6, 9 and 18 is/are allowed.
- 6) ☒ Claim(s) 1, 5, 13, 14 and 16 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on May 9th, 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☐ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- ☐ Notice of Informal Patent Application
- ☐ Other: _____

DETAILED ACTION

1. Claims 1, 5-6, 9, 13-14, 16 & 18 are pending in the application.
2. Claims 2-4, 7-8, 10-12, 15 & 17 have been canceled.

Response to Arguments

3. Applicant's arguments with respect to claims 1, 5-6, 9, 13-14, 16 & 18 have been considered but are moot in view of the new ground(s) of rejection.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 1, 5, 13-14 & 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gilhousen et al. (5,280,472) in view of view of Komara et al. (6,088,570) and further view of Wheatley (5,577,265).

In regards to Claims 1, 13 & 16, Gilhousen discloses a method for receiving wireless signals comprising: providing a rake receiver having a plurality of fingers, the rake receiver containing a finger for each antenna in an antenna system; receiving the signal from each antenna at a corresponding finger of the receiver (Fig. 3, elements 52A..I & Fig. 4, elements 20A & Fig. 5, elements 200, 210-214 & Column 3, lines 3-10 & Column 9, lines 49-56 & Column 10, lines 55-62 & Column 11, lines 40-56 & Column 17, lines 35-65) {Interpretation: The reference discloses a rake receiver (Fig. 4, elements 110, 106, 104) implemented in a multi antenna base

station wherein each finger is interpreted as a data receiver (Fig. 4, elements 110, 106). Furthermore, it would have been obvious to one of ordinary skill in the art at the time of the invention that a rake receiver comprises a plurality of fingers. The reference also discloses receiving the signals at multiple antenna elements providing a plurality of communication paths of the received signal wherein each path may be different from each other. The reference further discloses a "searcher" (Fig. 4, element 104), which continuously scans the time domain looking for the best paths and provides the strongest paths to the data receivers (fingers), therefore the rake receiver provides a finger for each antenna. Furthermore, it would have been obvious to one of ordinary skill in the art at the time of the invention that there is no criticality in the no. of fingers in a rake receiver this is a matter of design choice depending on the processing or accuracy desired. Furthermore, the antenna system can be interpreted to comprise a single antenna wherein the rake fingers are assigned to the received signal (antenna) as is shown in (Fig. 5, elements 200, 210-214)}. Gilhousen further discloses implementing a delay at each antenna (finger) so as to avoid signal cancellation between equal strength signals (Column 11, lines 67-68 & Column 12, lines 1-16). However, Gilhousen does not disclose calculating an amount of time for a signal to travel to a receiver from an antenna in an antenna system; and at each finger, (i) implementing a varying delay on the signal corresponding to the amount of time for the signal to travel to the receiver, the delay varying over a first predetermined range of values; (ii) measuring a signal power level of the signal; and (iii) resetting the delay to a value corresponding to the

highest measured signal power level of the signal for further operation of the receiver; and resolving the signal at the receiver.

Komara discloses a method of calculating an amount of time for a signal to travel to a receiver from an antenna in an antenna system (Column 2, lines 59-67 & Column 3, lines 1-6 & Column 4, lines 62-67 & Column 5, lines 1-15). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention that Komara teaches a calibration method to determine the time for a signal to travel to a receiver from an antenna in an antenna system and this can be implemented in the spread spectrum receiver as described in Gilhousen so as to time align the receiver to each antenna in the antenna system of the base station. Furthermore, there is no criticality in the implementation of the timing loop in a TDMA or a CDMA system this is a matter of design choice wherein the time alignment is performed in both systems. However, Gilhousen in view of Komara does not disclose at each finger, (i) implementing a varying delay on the signal corresponding to the amount of time for the signal to travel to the receiver, the delay varying over a first predetermined range of values; (ii) measuring a signal power level of the signal; and (iii) resetting the delay to a value corresponding to the highest measured signal power level of the signal for further operation of the receiver; and resolving the signal at the receiver.

Wheatley discloses implementing a varying delay on the signal, the delay varying over a first predetermined range of values; (ii) measuring a signal power level of the signal; and (iii) resetting the delay to a value corresponding to the highest measured

signal power level of the signal for further operation of the receiver; and resolving the signal at the receiver (Abstract, lines 2-5, 8-10 & Column 2, lines 60-67 & Column 3, lines 1-10, 19-23 & Column 4, lines 28-38 & Column 5, lines 56-67 Column 6, lines 15-28, 35-45, 60-67 & Fig.'s 2-3, elements 8, 16A-B) {Interpretation: The reference discloses precisely aligning (maximizing the measured signal power) the antenna in amplitude and phase so as to avoid the nulls in the combined received signal by varying the phase (delay) in the receive path of each antenna. The reference discloses measuring the combined signal power so as to avoid fading, therefore measuring the power in each finger. The reference discloses the antenna power pattern which is modified (by varying the phase) in the receive path so as to minimize fading i.e. cancellation of multiple (combined) received signals}. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention that Wheatley teaches implementing a variable delay element (phase shifters) in each element of an antenna array and this can be implemented in the system as described in Gilhousen in view of Komara so as to provide a variable antenna pattern so as to minimize the effects of fading and the effects of fading on power control.

In regards to Claim 5, Gilhousen in view of Komara and further in view of Wheatley discloses a method of receiving wireless signals as described above. Wheatley further discloses the step of resolving the signal at the receiver includes a combiner summing outputs of the plurality of fingers to recover a transmitted signal (Column 3, lines 4-10). Therefore, it would have been obvious to one of ordinary

skill in the art at the time of the invention that Gilhousen in view of Komara and further in view of Wheatley satisfies the limitations of the claims.

In regards to Claim 14, Gilhousen in view of Komara and further in view of Wheatley discloses a method of receiving wireless signals as described above. Gilhousen further discloses determining the predetermined range of values by calculating distances from antennas corresponding to the plurality of multi-path signals Column 11, lines 50-55, 67-68 & Column 12, lines 1-10) {Interpretation: The reference discloses that multipath is further determined since the received signal travels different distances to the antennas, thus the delays will be different in different antennas. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention that Gilhousen in view of Komara and further in view of Wheatley satisfies the limitations of the claims.

Allowable Subject Matter

6. Claims 6, 9 & 18 are allowed over the prior art of record.

Conclusion

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sudhanshu C. Pathak whose telephone number is (571)-272-3038. The examiner can normally be reached on M-F: 9am-6pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chieh M. Fan can be reached on (571)-272-3042.

The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 2611

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



Sudhanshu C. Pathak
Examiner
Art Unit 2611